

1909/202  
BASIC MOTOR VEHICLE CARE  
AND SERVICING  
November 2022  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
CRAFT CERTIFICATE IN ROAD TRANSPORT MANAGEMENT

MODULE II

BASIC MOTOR VEHICLE CARE AND SERVICING

3 hours

INSTRUCTIONS TO CANDIDATES

*This paper consists of TWO sections; A and B.*

*Answer ALL questions in section A and any FOUR questions from section B in the answer booklet provided.*

*Candidates should answer the questions in English.*

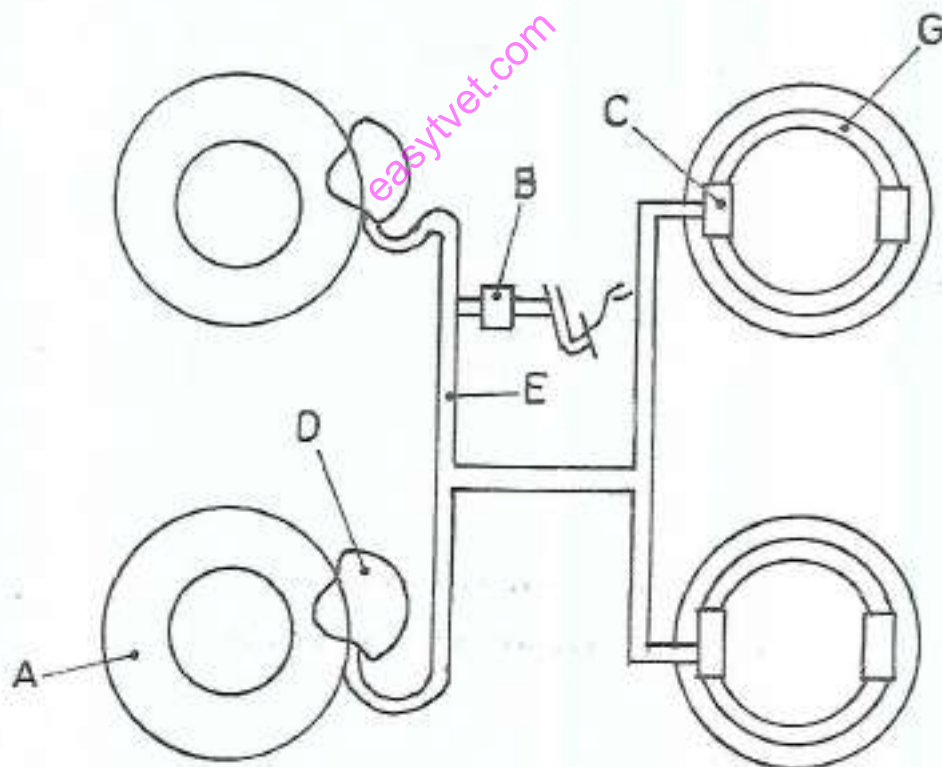
**This paper consists of 4 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

SECTION A (32 marks)

Answer ALL the questions in this section.

1. Name in each case the tool used when carrying out the following motor vehicle service:
  - (a) measurement of piston diameter;
  - (b) tightening the crankshaft bearing to specification;
  - (c) checking the piston ring side clearance;
  - (d) checking the battery cell condition.(4 marks)
2. State four advantages of the air cooling system in a motor vehicle. (4 marks)
3. List two advantages of fitting a turbocharger to an engine. (2 marks)
4. Name three engine positions that may be adopted in a motor vehicle. (3 marks)
5. Figure 1 below shows the transmission system of an engine of a motor vehicle. State the function of the parts labelled A, B, C and D. (4 marks)



6. State the function of each of the following motor vehicle lights:
  - (a) directional indicators;
  - (b) hazard lights;
  - (c) auxiliary driving lights.(3 marks)

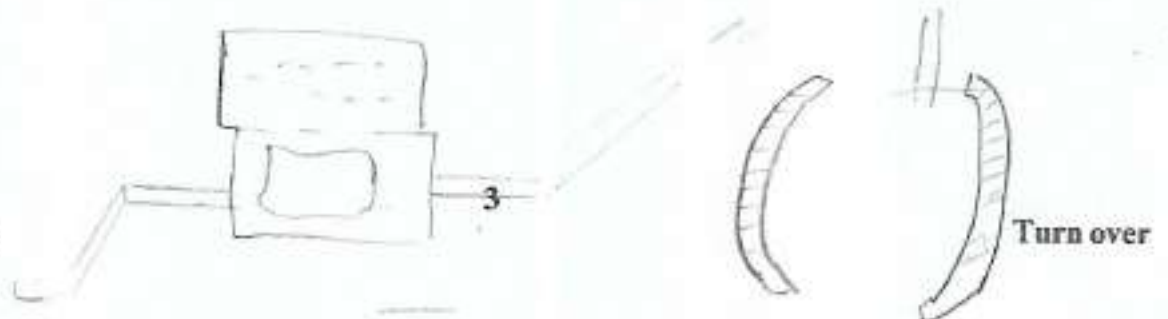


7. State the function of each of the following motor vehicle engine sensors:
- (a) knock sensor;
  - (b) cam position sensor;
  - (c) engine speed sensor. (3 marks)
8. State three functions of the air conditioning system in a motor vehicle. (3 marks)
9. State the importance of the suspension system of a motor vehicle. (2 marks)
10. Sketch the following dashboard warning lights:
- (a) parking brakes applied; (2 marks)
  - (b) low fuel. (2 marks)

**SECTION B (68 marks)**

*Answer any FOUR questions from this section.*

11. (a) Explain the operation of a four stroke petrol engine under the following headings:
- (i) induction;
  - (ii) compression;
  - (iii) power;
  - (iv) exhaust. (8 marks)
- (b) Sketch the following tools and state in each case their use:
- (i) micrometer;
  - (ii) rubber hammer;
  - (iii) chisel. (9 marks)
12. (a) A car tyre has the following markings: 215/65 R15 89H  
Interprete the meaning of the following:
- (i) 215
  - (ii) 65
  - (iii) R
  - (iv) 15 (8 marks)
- (b) Sketch the layout of the hydraulic braking system and label the parts. (9 marks)



13. (a) Explain four causes of each of the clutch faults:
- (i) clutch drag;
  - (ii) clutch judder. (8 marks)
- (b) With the aid of a sketch, explain the operation of a gear type of oil pump used in the motor vehicle lubrication system. (9 marks)
14. (a) Explain four causes of each of the following steering faults:
- (i) hard steering;
  - (ii) car pulls to one side during normal driving. (8 marks)
- (b) State two causes for each of the following cooling system faults.
- (i) Engine fails to reach normal operating temperature.
  - (ii) Engine overheating. (4 marks)
- (c) Describe the procedure of testing the cooling system for leakage. (5 marks)
15. (a) Explain four causes for each of the following engine faults,:
- (i) engine will not crank;
  - (ii) excessive fuel consumption. (8 marks)
- (b) With the aid of a circuit diagram, explain the operation of the thermal type fuel gauge. (9 marks)

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